BENJAMIN L. CARDIN
UNITED STATES SENATOR
MARYLAND

AL-11-000-3139

United States Senate

Washington, DC 20510–2004

March 1, 2011

Ms. Lisa Jackson
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, D.C. 20460

Dear Administrator Jackson:

As you are aware, the vast exploration for natural gas reserves in the Marcellus Shale formation has led to the extensive use of the practice of hydraulic fracturing, or fracking. This process involves large quantities of water, carrying sand and assorted chemicals, being injected underground. Hydraulic fracturing breaks up the shale formation to allow for the economical extraction of natural gas reserves. Because these processes involve large quantities of water, not all of which is recovered, there are potential implications for both the Federal Water Pollution Control Act (Clean Water Act) and the Safe Drinking Water Act.

The U.S. Senate Environment and Public Works Committee, subcommittee on water and wildlife, which I chair, has oversight jurisdiction over these statutes. I am concerned about the potential adverse effects that these drilling operations may be having on the quality of the region's water, including its drinking water supplies.

In preparation for a hearing that I will be holding on this subject, I am requesting that the U.S. Environmental Protection Agency (EPA) provide information regarding the following three matters:

1) A summary of the applicability of current federal regulations that govern natural gas drilling as well as current plans or proposals to change such regulations. Please include regulations covered under both the Federal Water Pollution Control Act and the Safe Drinking Water Act. In addition, in order to understand the complete regulatory framework under which such operations take place, please also include any pertinent regulations from the Clean Air Act, the Toxic Substances Control Act, the Resource Conservation and Recovery Act, the Emergency Planning and Community Right to Know Act, and the Comprehensive Environmental Response, Compensation, and Liability Act.

2) What collaborative efforts has the Agency undertaken in working with local and State governments to collectively use authorities to ensure that the extraction of natural gas does not adversely impact local water supplies, public health or the environment?

3) Finally, what is the status of EPA's ongoing research study on the relationship between hydraulic fracturing and drinking water resources?

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The subcommittee will be holding its hearing on April 12, 2011. Your prompt attention to these questions is necessary in order to provide professional staff sufficient time to review current regulatory frameworks.

Thank you for your attention to this inquiry and I look forward to your response.

Sincerely,

Benjamin L. Cardin
United States Senator

BLC:mb

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR 0 8 2011

OFFICE OF CONGRESSIONAL AND
INTERGOVERNMENTAL RELATIONS

Senator Benjamin L. Cardin
United States Senate
Washington, DC 20510

Dear Senator Cardin:

Thank you for your March 1, 2011 letter regarding the status and applicability of current federal regulations that cover natural gas drilling. I share your interest in protecting our nation's water supply. Please be assured that EPA will use its authorities, consistent with the law and best available science, and in coordination with our state and local partners, to protect communities across the nation from water quality, human health, and environmental impacts associated with natural gas production activities.

As discussed in more detail below, EPA's authority to regulate or respond to natural gas exploration and production activities is limited by exemptions established under several of the principal environmental statutes we administer, including the petroleum and natural gas exclusion under Superfund, the exploration and production exemption under the Resource Conservation and Recovery Act, and the Safe Drinking Water Act's exclusion of hydraulic fracturing from requirements of the Underground Injection Control program (except where diesel fuel is used). This letter provides a summary of the major federal regulations that EPA currently implements with respect to natural gas drilling.[1]

Clean Water Act

In certain circumstances, natural gas production activities may result in discharges to surface waters. Such discharges are subject to requirements under the Clean Water Act (CWA). See CWA sections 301(b) and 402 (a). The CWA prohibits the discharge of pollutants by point sources into waters of the United States, except in compliance with certain provisions of the CWA, including section 402 of the CWA which establishes the National Pollutant Discharge Elimination System (NPDES) program, under which EPA, or an authorized state agency, may issue a permit allowing the discharge of pollutants into waters of the U.S. The technology-based requirements for discharges into surface waters under the CWA are found in 40 Code of Federal Regulations (CFR) Part 435, which includes requirements for discharges from oil and gas extraction activities.

[1] The provisions discussed in this response are not intended to be an exhaustive discussion of all EPA statutory, regulatory or response authorities. For example, EPA's authority under section 1431 of the Safe Drinking Water Act is not discussed; however, the Agency is currently exercising this authority to address particular situations involving hydraulic fracturing operations.

The onshore subcategory (Subpart C) is subject to limitations based on Best Practicable Control Technology (BPT). *See* 44 Fed. Reg. 22069 (April 13, 1979). The onshore subcategory includes land-based facilities that perform oil and natural gas extraction. Onshore facilities can be located throughout the United States, but specifically exclude "Coastal" facilities (see below). The offshore subcategory (Subpart A) and coastal subcategory (subpart D) are subject to limitations based on Best Available Technology (BAT), Best Conventional Pollutant Control Technology (BCT), and New Source Performance Standards (NSPS). *See* 58 Fed. Reg. 12454 (March 4, 1993) (Offshore) and 61 Fed. Reg. 66085 (Coastal) (Dec. 16, 1996). The offshore and coastal subcategories include facilities that perform oil and natural gas extraction operations in offshore and coastal waters. Most of these facilities are located in three regions: (1) the offshore waters beyond three miles from shore in the Gulf of Mexico; (2) offshore waters beyond three miles from shore in California; and (3) Cook Inlet, Alaska.

As part of its effluent guidelines planning process under CWA section 304(m), EPA is considering whether to initiate a rulemaking to revise these regulations to address coal bed methane extraction. Also, in response to public comment, EPA is examining whether to initiate a rulemaking to address shale gas extraction.

Safe Drinking Water Act

Under the Safe Drinking Water Act (SDWA), hydraulic fracturing, except when using diesel fuel, is excluded from the definition of "underground injection." This means hydraulic fracturing operations, except where diesel fuel is used, are not subject to the permitting requirements of the Underground Injection Control (UIC) program. Any flow back/produced water from hydraulic fracturing activities disposed of via injection into the subsurface is regulated under the SDWA UIC program. Permit requirements for underground injection activities are found at 40 CFR parts 144-149. If an owner or operators fails to comply with these regulations they may be subject to an enforcement action under section1423 of the SDWA. EPA is considering strategies for outlining programmatic requirements related to hydraulic fracturing with diesel fuel consistent with the SDWA.

Clean Air Act

1. Emission Standards:

EPA has a variety of federal air regulations that set air emission standards that apply to certain oil and natural gas production and processing equipment. These regulations include new source performance standards (NSPS) issued pursuant to Clean Air Act (CAA) section 111 and national emission standards for hazardous air pollutants (NESHAP) issued pursuant to CAA section 112. The relevant regulations include: Standards of Performance for Equipment Leaks of Volatile Organic Compounds (VOC) from Onshore Natural Gas Processing Plants (40 CFR Part 60, Subpart KKK); Standards of Performance for Onshore Natural Gas Processing Plants: SO2 Emissions (40 CFR Part 60, Subpart LLL); Oil and Natural Gas Production NESHAP (40 CFR Part 63, Subpart HH); and Natural Gas Transmission and Storage NESHAP (40 CFR Part 63, Subpart HHH). These regulations do not, however, apply to hydraulic fracturing equipment.

The Agency is currently reviewing the above emission standards pursuant to sections 111(b)(1)(B), 112(d)(6) and 112(f)(2), and determining whether any revisions to those standards

are needed. Pursuant to the requirements of a consent decree, the Agency must propose revisions, if any, to the above standards by April 29, 2011, and take final action by November 30, 2011.

In conjunction with the NSPS/NESHAP review, the Agency is evaluating emissions from oil and natural gas operations, including exploration, production, processing, transmissions and distribution.

2. New Source Review permitting:

With regard to permitting of natural gas drilling under the CAA, the New Source Review (NSR) requirements vary depending on whether the area in which the drilling is occurring is in attainment or nonattainment for a given pollutant. Under NSR, emissions occurring in areas in attainment must comply with Prevention of Significant Deterioration (PSD) program (see CAA 165 et seq.; 40 CFR 52.21), while emissions occurring in nonattainment areas must comply with nonattainment NSR (NANSR) program (see CAA 171 et seq.; 40 CFR 51.165). Under these programs, a major stationary source, i.e., a source which emits a pollutant above a specified tonnage threshold (see CAA 169(1) and 40 CFR 52.21(b)(1) (PSD); CAA 302(j) and 40 CFR 51.165(a)(1)(iv)(A) (generally for NSR, including NANSR)), which constructs or undertakes a major modification must obtain a permit for any pollutant which it emits in significant amounts (in the case of new construction) or for which the project results in a significant increase and a significant net increase (in the case of modifications) (see CAA 165(a) and 40 CFR 52.21 (PSD); CAA 173 and 40 CFR 51.160(a) (NANSR)).

In the oil and gas industry, the primary issue surrounding permits has been which pollution emitting activities should be aggregated to determine if the relevant major source thresholds have been triggered and thus which emission points are subject to control requirements. The operative regulatory language for this determination is "building, structure, facility, or installation" (52.21(b)(6) (PSD); 51.165(a)(a)(ii) (NANSR)), which states that pollutant emitting activities should be grouped together if they are: (1) in the same Standard Industrial Classification (SIC) code (generally not an issue for oil and gas), (2) under common control, and (3) are located on one or more contiguous or adjacent properties. (40 CFR 52.21(b)(6) (PSD); 40 CFR 51.165(a)(a)(ii) (NANSR)). Most of the recent activity in this area has focused on which emission points qualify as contiguous or adjacent. In evaluating this criterion, EPA has historically considered both distance between and interdependence of the activities (properties do not need to be physical touching to be considered "contiguous or adjacent").

While EPA has no current plans to revise these regulations with regard to their application to the oil and gas industry, EPA has recently issued two source determinations that provide guidance in that area.[2] Consistent with the regulatory language and past Agency guidance, the two determinations turned on whether or not the various emissions-producing activities under consideration were uniquely interdependent so as to be considered "adjacent." In

[2] While these major source determinations were issued under the Title V permitting program (see CAA 501 et seq ; 40 CFR part 71), the Title V regulations contain the same operative definition of "building, structure, facility, or installation" as the NSR program and it is applied consistent with the NSR program. See 61 Fed. Reg. 34202, 34210 (July 1, 1996).

the case of the Summit Petroleum applicability determination, EPA Region 5 determined that the sour wells and sweetening plant were uniquely interdependent because gas from the wells could only flow to the sweetening plant for production, and thus determined that they were adjacent. However, in the BP Florida River Compressor Station permitting action, EPA Region 8 responded to comments arguing that widely dispersed BP-owned wells and compressor stations should be aggregated by finding that the units lacked a sufficient relationship with the Florida River Station to justify aggregating across the entire well field, because gas from the wells and compressor stations could flow to other non-BP-owned entities and Florida River could accept gas from other wells.

3. General Duty Clause

Section 112(r)(1) of the CAA imposes a *general duty* on a facility to minimize and prevent an "accidental release." Section 112(r)(2) defines an "*accidental release*" as "an unanticipated emission of a regulated substance or other extremely hazardous substance into the ambient air from a stationary source." Additionally, section 112(r)(1) provides that "[t]he owners and operators of stationary sources producing, processing, handling or storing such substances have a general duty in the same manner and to the same extent as the Occupational Safety and Health Act general duty clause to identify hazards which may result from such releases using appropriate hazards assessment techniques, to design and maintain a safe facility taking such steps as are necessary to prevent releases, and to minimize the consequences of accidental releases which do occur." The section 112(r)(1) General Duty Clause was created by statute and is self-implementing.

Toxic Substances Control Act

With respect to the Toxic Substances Control Act, 15 United States Code (U.S.C.) section 2601 et seq., there are no regulations or proposed regulations specific to natural gas drilling. However, there are several statutory and regulatory authorities that relate to the regulation and testing of chemicals that may be relevant to natural gas drilling activities and which EPA is reviewing with respect to hydraulic fracturing.

The regulations that currently apply to all chemicals, including those that might be used in natural gas drilling activities, require manufacturers to notify EPA at least 90 days before beginning to manufacture or import a new chemical substance. *See* 15 U.S.C. section 2604. The regulations governing Premanufacture Notification are at 40 CFR part 720. This notification provides EPA the opportunity to evaluate the chemical substance and its potential impact on human health or the environment. EPA can place conditions, up to and including a ban on manufacture, on a new chemical before it is entered into commerce.

For chemical substances already in commerce, EPA can issue significant new use rules, which require notice to the Agency before engaging in new uses of designated chemical substances and give the Agency the opportunity to restrict such uses. *See* 15 U.S.C. section 2604. The regulations governing significant new use rules are at 40 CFR part 721. EPA also can require testing of chemicals by manufacturers and processors pursuant to section 4. *See* 15 U.S.C. section 2603. This includes chemicals used in natural gas drilling. The procedural rules governing testing are at 40 CFR part 790.

In addition, pursuant to authority in section 8, 15 U.S.C. section 2607, EPA can require reporting by manufacturers and processors of chemical substances or mixtures to provide information relating to those substances or mixtures, including copies of health and safety studies. See 40 CFR part 704.

Resource Conservation Recovery Act

Congress exempted exploration and production (E&P) wastes from the Resource Conservation and Recovery Act (RCRA) Subtitle C hazardous waste regulations pending a study and Regulatory Determination by EPA that regulation under Subtitle C of RCRA was warranted. RCRA also specifically stated that before such regulations could go into effect, they must be submitted to both Houses of Congress and "shall take effect only when authorized by Act of Congress." Thus, in 1987, the Agency completed the study and Report to Congress, and in 1988 published a regulatory determination that hazardous waste regulations were not warranted. As a result, RCRA regulations exempt wastes generated in natural gas drilling and production operations from hazardous waste management requirements, including the requirements for waste identification and manifesting, and conditions for storage and disposal. Wastes that are exempt from the definition of "hazardous waste" under 40 C.F.R. section 261.4(b)(5) include "[d]rilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil, natural gas or geothermal energy."

However, the RCRA regulatory exemption does not cover all wastes from natural gas well sites. The E&P exemption does not include wastes that are not uniquely associated with gas production. Therefore, waste streams commonly produced at other types of industrial facilities, such as waste lubricants and solvents, are not exempt, nor are unused products that are leaked or spilled, such as unused drilling mud or fracturing fluid spilled on the ground. In addition, exempt wastes may be regulated if they are mixed with non-exempt wastes. For example, storage of produced/flowback waters would generally be regulated if commingled with a listed hazardous waste. 40 C.F.R. section 261.3(a)(2)(iv). Further, wastes from natural gas production, such as produced/flowback waters, may be regulated under state Subtitle D solid waste programs, depending on individual state programs.

EPA is currently reviewing a petition for rulemaking under RCRA section 7004(a) submitted by the Natural Resources Defense Council on September 8, 2010, asking EPA to regulate waste from the exploration, development, and production of crude oil and natural gas under RCRA Subtitle C.

Comprehensive Environmental Response, Compensation, and Liability Act and the Emergency Planning and Community Right-to-Know Act

Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), EPA can generally require persons to conduct or pay for "response" to releases of hazardous substances. CERCLA sections 106 and 107. "Hazardous substances" includes substances regulated as hazardous under various statutes including the CWA and CAA, but excludes petroleum, petroleum products and natural gas. CERCLA section 101(14); 40 C.F.R. 302.4. The injection of a hazardous substance into the ground constitutes a release (regardless of the fact that the injection may be to recover petroleum or natural gas). CERCLA section 101(22). However, EPA cannot require responsible persons to conduct or pay for response to

releases of hazardous substances that are injected, if the injection is authorized under Federal law, or under applicable State law for the production of crude oil or natural gas. CERCLA sections 107(j) and 101(10). Where the injection is not so authorized, EPA can require an owner or operator to conduct or pay for "response," which includes all cleanup and other actions necessary to protect public health and welfare and the environment from the release. CERCLA sections 101(23), (24), (25).

CERCLA section 103(a) also requires any person in charge of a facility from which there is a release of a reportable quantity of a hazardous substance not authorized under section 101(10), to report the release to the National Response Center. Also, Emergency Planning and Community Right-to-Know Act (EPCRA) sections 304 and 311 require owners and operators of facilities to report releases of reportable quantities of hazardous and extremely hazardous substances, and the presence of threshold quantities of hazardous chemicals.

Other EPA Activities

EPA is currently undertaking a peer reviewed research study on the possible effects of hydraulic fracturing on drinking water resources to better understand any potential environmental and human health implications. The study is intended to provide data and to reduce scientific uncertainties about the process. The draft study design is currently being reviewed by the Scientific Advisory Board, and will include an opportunity for public comment. The initial study results are expected to be available in late 2012.

EPA is committed to working with local and state authorities collectively to ensure that activities associated with natural gas extraction do not adversely impact surface water quality, local water supplies, public health or the environment. In addition to the National Response Center Hotline for reporting oil or chemical incidents (800-424-8802), EPA has established a hotline for citizens to report suspicious activities associated with drilling operations. Citizens may call 1-877-919-4EPA (toll free) or send an email to eyesondrilling@epa.gov if they observe what appears to be illegal disposal of wastes or other suspicious activity. EPA is collaborating with states to ensure that implementation of federal programs for protecting human health and the environment effectively addresses key issues related to natural gas drilling.

Again, thank you for your letter. If you have further questions, please do not hesitate to contact me or have your staff contact Carolyn Levine in the Office of Congressional and Intergovernmental Relations at (202) 564-1859.

Sincerely,

Arvin Ganesan
Deputy Associate Administrator
for Congressional Affairs